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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/844,662	04/27/2001	Eva Raschke	8325-0012	9004

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EXAMINER	
BRUSCA, JOHN S	

ART UNIT	PAPER NUMBER
1631	

DATE MAILED: 11/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/844,662	RASCHKE ET AL.	
	Examiner	Art Unit	
	John S. Brusca	1631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 August 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *57,63,64,66,68-71 and 87-102* is/are pending in the application.

4a) Of the above claim(s) *91-102* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *57,63,64,66,68-71 and 87-90* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 8-25-06; 6-9-06
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Newly submitted claims 91-102 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: In the restriction requirement mailed 07 April 2004 the originally elected claims were restricted between 6 groups, including group 1 drawn to a method of making a complex of a protein and chromatin, and group 6 drawn to a complex of protein and chromatin. The applicants elected group 6 in their response filed 10 May 2004.

The applicant has received an action on the merits for the originally elected invention. Accordingly, claims 91-102 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Specification

2. The objection to the disclosure in the Office action mailed 24 March 2006 because it contains an embedded hyperlink and/or other form of browser-executable code on page 15 is withdrawn in view of the remarks submitted by the applicants on 25 August 2006 that the specification was previously amended to remove the hyperlink in the amendment entered 29 October 2004.

3. The objection to the specification in the Office action mailed 24 March 2006 for lack of compliance with the sequence rules is withdrawn in view of the sequence listing, computer readable form, and amendment to the specification filed on 25 August 2006.

Claim Objections

4. The objection to claim 68 as being of improper dependent form for failing to further limit the subject matter of a previous claim in the Office action mailed 24 March 2006 is withdrawn in view of the amendment filed 25 August 2006.

Claim Rejections - 35 USC § 101

5. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 57, 63, 64, 66, 68-71, and 87-90 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

It is brought to the Applicant's attention that a product by process claim is examined for the claimed product only, and that no consideration is given to the method of making the claimed product. See M.P.E.P. 2113. The instant claims are drawn to chromatin that comprises an exogenous protein, however the breadth of the claimed subject matter includes products that have the same structure as naturally occurring protein-chromatin complexes. Claim 68 is drawn to a cell comprising an exogenous polypeptide encoded by a nucleic acid introduced into the cell. however the breadth of the claimed subject matter includes cells that comprise polypeptides encoded by endogenous nucleic acids.

Claims 57, 63, 64, 66, 68-71, and 87-90, as written, do not sufficiently distinguish over chromatin complexes with protein as they exist naturally because the claims do not particularly point out any non-naturally occurring differences between the claimed products and the naturally occurring products. In the absence of the hand of man, the naturally occurring products are considered non-statutory subject matter. See Diamond v. Chakrabarty, 447 U.S. 303, 206 USPQ

193 (1980). The claims should be amended to indicate the hand of the inventor, e.g., by insertion of "Isolated" or "Purified" See MPEP 2105.

Claim Rejections - 35 USC § 102

6. The rejection of claims 57, 63, 64, 66, 68, 70, 88, and 89 under 35 U.S.C. 102(b) as being anticipated by Crossley et al. in light of Chen et al. and Morceau in the Office action mailed 24 March 2006 is withdrawn in view of the applicant's arguments filed 25 August 2006 that Crossley et al. does not show an exogenous protein that binds in a region of cellular chromatin that is sensitive to DNase.

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 57, 63, 64, and 87-90 are rejected under 35 U.S.C. 102(b) as being anticipated by Boyes et al. in light of Morceau et al. and Hays and Gregory.

The claims are drawn to a complex of an exogenous polypeptide bound to chromatin. The binding site is sensitive to a probe of chromatin structure. In some embodiments the exogenous polypeptide is a zinc finger transcription factor and the probe is DNase I, a chemical probe, or a restriction endonuclease.

Boyes et al. shows in the abstract and throughout reconstitution of chromatin comprising a GATA-1 binding site. Boyes et al. shows that binding of GATA-1 fragments to the reconstituted chromatin results in disruption of the chromatin structure, as assayed by micrococcal nuclease in figures 1 and 4, and DNase 1 in figure 4. Boyes et al. shows that binding

of full length GATA-1 to the reconstituted chromatin results in disruption of the chromatin structure, as assayed by DNase 1 in figure 6.

Morceau et al. reviews the properties of GATA-1, and shows that it is a zinc finger protein on page 537, 542-543, and figure 1.

Hayes reviews the use of chemical probes to analyze chromatin structure. Hayes lists in Table 1, page 130 numerous chemical probes that can be used to assay chromatin structure. Hayes serves to show that chromatin structure can be probed by chemical probes.

Gregory reviews the general applicability of restriction endonucleases as probes to analyze chromatin structure. Gregory serves to shows that chromatin structure can be probed by restriction endonucleases.

9. Claims 57, 63, 64, 66, 68, 70, 71, and 87-90 are rejected under 35 U.S.C. 102(b) as being anticipated by Stamatoyannopoulos et al. in light of Morceau et al. and Hays and Gregory.

The claims are drawn to a complex of an exogenous polypeptide bound to chromatin. The binding site is sensitive to a probe of chromatin structure. In some embodiments the exogenous polypeptide is a zinc finger transcription factor and the probe is DNase I, a chemical probe, or a restriction endonuclease. In some embodiments a cell comprises the complex, and the cell is a human cell. It is brought to the Applicant's attention that a product by process claim is examined for the claimed product only, and that no consideration is given to the method of making the claimed product. See M.P.E.P. 2113. The instant claims are drawn to chromatin that comprises an exogenous protein, however the breadth of the claimed subject matter includes products that have the same structure as naturally occurring protein-chromatin complexes. Claim 68 is drawn to a cell comprising an exogenous polypeptide encoded by a nucleic acid introduced into the cell.

however the breadth of the claimed subject matter includes cells that comprise polypeptides encoded by endogenous nucleic acids.

Stamatoyannopoulos et al. shows in the abstract and throughout analysis of a GATA-1 binding site in the human beta globin locus control region (LCR). Stamatoyannopoulos et al. shows analysis of two types of cells, mouse erythroleukemia cells (MEL) stably transformed with constructs of the LCR in which the GATA-1 binding site in the LCR is either mutated or normal by use of DNase 1 in figures 2-5, and additionally Namalwa human lymphoid cells comprising a human LCR region using micrococcal nuclease in figure 6. Stamatoyannopoulos et al. shows that the LCR region chromatin structure can be analyzed by DNase 1. Stamatoyannopoulos et al. concludes from comparison of mutated and normal GATA-1 binding sites in the LCR that binding of GATA-1 results in disruption of chromatin structure in the LCR.

Morceau et al. reviews the properties of GATA-1, and shows that it is a zinc finger protein on page 537, 542-543, and figure 1.

Hayes reviews the use of chemical probes to analyze chromatin structure. Hayes lists in Table 1, page 130 numerous chemical probes that can be used to assay chromatin structure. Hayes serves to show that chromatin structure can be probed by chemical probes.

Gregory reviews the general applicability of restriction endonucleases as probes to analyze chromatin structure. Gregory serves to shows that chromatin structure can be probed by restriction endonucleases.

Claim Rejections - 35 USC § 103

10. The rejection of claims 57, 66, and 71 under 35 U.S.C. 103(a) as being unpatentable over Crossley et al. in view of Chen et al. in the Office action mailed 24 March 2006 is withdrawn in

view of the applicant's arguments filed 25 August 2006 that Crossley et al. does not show an exogenous protein that binds in a region of cellular chromatin that is sensitive to DNase.

11. The rejection of claims 57, 66, and 87 under 35 U.S.C. 103(a) as being unpatentable over Crossley et al. in view of Chen et al. as applied to claims 57, 66, and 71 above, and further in view of Hays in the Office action mailed 24 March 2006 is withdrawn in view of the applicant's arguments filed 25 August 2006 that Crossley et al. does not show an exogenous protein that binds in a region of cellular chromatin that is sensitive to DNase..

12. The rejection of claims 57, 66, and 90 under 35 U.S.C. 103(a) as being unpatentable over Crossley et al. in view of Chen et al. as applied to claims 57, 66, and 71 above, and further in view of Gregory in the Office action mailed 24 March 2006 is withdrawn in view of the applicant's arguments filed 25 August 2006 that Crossley et al. does not show an exogenous protein that binds in a region of cellular chromatin that is sensitive to DNase.

13. The rejection of claims 57, 66, and 69 under 35 U.S.C. 103(a) as being unpatentable over Crossley et al. in view of Chen et al. as applied to claims 57, 66, and 71 above, and further in view of Greisman et al. in the Office action mailed 24 March 2006 is withdrawn in view of the applicant's arguments filed 25 August 2006 that Crossley et al. does not show an exogenous protein that binds in a region of cellular chromatin that is sensitive to DNase.

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

15. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

16. Claims 57, 87, and 90 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boyes et al. in view of Hays in view of Gregory.

The claims are drawn to a complex of an exogenous polypeptide bound to cellular chromatin. In some embodiments the binding site is sensitive to a chemical or restriction endonuclease probe of chromatin structure.

Boyes et al. shows in the abstract and throughout reconstitution of chromatin comprising a GATA-1 binding site. Boyes et al. shows that binding of GATA-1 fragments to the reconstituted chromatin results in disruption of the chromatin structure, as assayed by micrococcal nuclease in figures 1 and 4, and DNase 1 in figure 4. Boyes et al. shows that binding of full length GATA-1 to the reconstituted chromatin results in disruption of the chromatin structure, as assayed by DNase 1 in figure 6. Boyes et al. does not show use of chemical or restriction endonuclease probes to analyze chromatin structure.

Hayes reviews the use of chemical probes to analyze chromatin structure. Hayes lists in Table 1, page 130 numerous chemical probes that can be used to assay chromatin structure. Hayes serves to show that chromatin structure can be probed by chemical probes.

Gregory reviews the general applicability of restriction endonucleases as probes to analyze chromatin structure. Gregory serves to shows that chromatin structure can be probed by restriction endonucleases.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to determine the chromatin structure of the complex of Boyes et al. by use of chemical or restriction endonuclease probes of chromatin structure because Hayes and Gregory show that chemical and restriction endonuclease probes are effective means to analyze chromatin structure. Performing such analysis would establish that the chromatin-GATA-1 complexes of Boyes et al. are species of the claimed subject matter of claims 57, 87, and 90.

17. Claims 57, 87, and 90 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stamatoyannopoulos et al. in view of Hays in view of Gregory.

The claims are drawn to a complex of an exogenous polypeptide bound to chromatin. The binding site is sensitive to a probe of chromatin structure. In some embodiments the binding site is sensitive to a chemical or restriction endonuclease probe of chromatin structure. It is brought to the Applicant's attention that a product by process claim is examined for the claimed product only, and that no consideration is given to the method of making the claimed product. See M.P.E.P. 2113. The instant claims are drawn to chromatin that comprises an exogenous protein, however the breadth of the claimed subject matter includes products that have the same structure as naturally occurring protein-chromatin complexes.

Stamatoyannopoulos et al. shows in the abstract and throughout analysis of a GATA-1 binding site in the human beta globin locus control region (LCR). Stamatoyannopoulos et al. shows analysis of two types of cells, mouse erythroleukemia cells (MEL) stably transformed

with constructs of the LCR in which the GATA-1 binding site in the LCR is either mutated or normal by use of DNase 1 in figures 2-5, and additionally Namalwa human lymphoid cells comprising a human LCR region using micrococcal nuclease in figure 6. Stamatoyannopoulos et al. shows that the LCR region chromatin structure can be analyzed by DNase 1. Stamatoyannopoulos et al. concludes from comparison of mutated and normal GATA-1 binding sites in the LCR that binding of GATA-1 results in disruption of chromatin structure in the LCR. Stamatoyannopoulos et al. does not show use of chemical or restriction endonuclease probes to analyze chromatin structure.

Hayes reviews the use of chemical probes to analyze chromatin structure. Hayes lists in Table 1, page 130 numerous chemical probes that can be used to assay chromatin structure. Hayes serves to show that chromatin structure can be probed by chemical probes.

Gregory reviews the general applicability of restriction endonucleases as probes to analyze chromatin structure. Gregory serves to shows that chromatin structure can be probed by restriction endonucleases.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to determine the chromatin structure of the complex of Stamatoyannopoulos et al. by use of chemical or restriction endonuclease probes of chromatin structure because Hayes and Gregory show that chemical and restriction endonuclease probes are effective means to analyze chromatin structure. Performing such analysis would establish that the chromatin-GATA-1 complexes of Stamatoyannopoulos et al. are species of the claimed subject matter of claims 57, 87, and 90.

18. Claims 57, 66, and 69 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stamatoyannopoulos et al. in view of Greisman et al.

The claims are drawn to a complex of an exogenous polypeptide bound to chromatin. The binding site is sensitive to a probe of chromatin structure. In some embodiments the claims are drawn to a plant cell comprising the complex. It is brought to the Applicant's attention that a product by process claim is examined for the claimed product only, and that no consideration is given to the method of making the claimed product. See M.P.E.P. 2113. The instant claims are drawn to chromatin that comprises an exogenous protein, however the breadth of the claimed subject matter includes products that have the same structure as naturally occurring protein-chromatin complexes.

Stamatoyannopoulos et al. shows in the abstract and throughout analysis of a GATA-1 binding site in the human beta globin locus control region (LCR). Stamatoyannopoulos et al. shows analysis of two types of cells, mouse erythroleukemia cells (MEL) stably transformed with constructs of the LCR in which the GATA-1 binding site in the LCR is either mutated or normal by use of DNase 1 in figures 2-5, and additionally Namalwa human lymphoid cells comprising a human LCR region using micrococcal nuclease in figure 6. Stamatoyannopoulos et al. shows that the LCR region chromatin structure can be analyzed by DNase 1. Stamatoyannopoulos et al. concludes from comparison of mutated and normal GATA-1 binding sites in the LCR that binding of GATA-1 results in disruption of chromatin structure in the LCR. Stamatoyannopoulos et al. does not show plant cells comprising exogenous polypeptides bound to chromatin.

Greisman et al. teach a strategy for selecting high-affinity zinc finger proteins for diverse DNA target sites. Greisman et al. shows a strategy for selecting high-affinity zinc finger proteins for diverse DNA target sites. Additionally, at column 7, lines 29-30, they state that the zinc finger proteins provide means for developing plants with altered phenotypes.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the complex of Stamatoyannopoulos et al. by use of a complex of a zinc finger protein with chromatin in a plant cell in view of the conventionality of doing so taught by Greisman et al. for the purpose of pursuing research to develop plants with altered phenotypes.

Conclusion

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John S. Brusca whose telephone number is 571 272-0714. The examiner can normally be reached on M-F 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Wang can be reached on 571 272-0811. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jon S. Brusca 11 November 2006

John S. Brusca
Primary Examiner
Art Unit 1631

jsb